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FREE-FLOWING POLYMER COMPOSITION

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The present invention pertains to a free-flowing polymer composition and process therefor. More particularly, the present invention pertains to a free-flowing polymer composition comprising polymer and an anti-blocking agent and processes for producing such a composition:

Many polymers are often prepared by a polymerization of a mixture of monomers in, for example, a solution or slurry process. The polymerization product may then be recovered in a form suitable for subsequent handling and part manufacturing. This recovery operation produces materials in the form of particles, flakes or powders. Unfortunately, many such materials have a tendency to stick together, that is, block, agglomerate or cake, and/or adhere to processing equipment. Factors such as temperature, storage time, and/or compression often facilitate, contribute to, or exacerbate the aforementioned stickiness. Thus, the polymer materials are often not substantially free-flowing.

If the polymer particles are not free-flowing, then they present a few problems. One problem is that the particles may be difficult to package, ship, and incorporate into subsequent articles because the reduced flowability hinders the uniform distribution of said particles. Another problem stems from the tendency of the particles to stick to the manufacturing and processing equipment, for example, screens, dryers, meters, extruding equipment and other fabricating machinery. Thus, production is often hindered because the equipment must be cleaned periodically to remove the agglomerated particles.

One way in which the caking tendencies of polymers have been reduced is by blending finely divided silica or fumed silica with the polymer particles. Unfortunately, even though the caking tendency of the polymer particles may be reduced, the silica is a low bulk density solid and tends to make the working environment unpleasant due to silica dust.

In order to reduce dust associated with finely divided or fumed silica, U.S. Patent No. 5,366,645 suggests that a porous, amorphous silica be imbued with a liquid oil and employed with polymers. Unfortunately, the porous, amorphous silicas required for such a composition are relatively expensive and difficult with which to work.

For the aforementioned reasons, it would be desirable to discover a new polymer particle composition which is substantially free flowing and relatively dust-free. It would further be desirable if such a composition employs readily available components that are not